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(12) Patent:  
(54) SURGICAL INSTRUMENT

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(54) INSTRUMENT CHIRURGICAL

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The present invention relates to new and useful improvements in surgical instruments and more particularly to a lance for use in the treatment of snake bites.

Authorative instructions for the lancing of poisonous snake bite wounds recommend as many or more than twenty-five incisions encircling an anatomy member above the poison area as it progresses toward the heart. It is of vital importance to make the initial incision at the pin point entry of the fangs as well as to make this and successive incisions in such a manner as to cause the patient the least possible excitement. The difficulty of effectively completing such an operation in a minimum of time without the aid of specialized instruments will be apparent.

Accordingly, it is an object of the present invention to provide a plunger type blade to be accurately directed and released to instantaneously penetrate the body to a predetermined depth.

Another object of the invention is to provide means for adjusting the stoke of the blade to increase or decrease the depth of penetration.

A further object is to provide sighting means to aid in accurately making the incision at a desired location with respect to the pin point fang wounds.

A still further object is to provide a pocket case in which the instrument is housed for conveniently carrying in the pocket or suspended from the belt of a person for instant use.

An additional object is to provide a device of this character of simple and practical construction, which is efficient and reliable in operation, relatively inexpensive to manufacture and otherwise welladapted for the purpose for which the same is intended.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view;

Figure 2 is a longitudinal sectional view;

Figure 3 is a front elevational view;

Figure 4 is a transverse sectional view taken on a line 4-4 of Figure 2; and

Figure 5 is an enlarged fragmentary longitudinal sectional view of the sectional blade.

Referring now to the drawing in detail, wherein for the purpose of illustration, we have disclosed a preferred embodiment of our invention, the numeral 5 designates a substantially rectangular case which is closed at its top by a hinged cover 6.

. A lance or blade 7 is slidably mounted in central openings 8 and 9 at the front and rear ends, respectively, of the case to project both forwardly and rearwardly therefrom and the front end of the lance is provided with a replaceable tip or sharpened cutting end 10 to renew the same when desired. A ring 11 is secured to the rear end of the lance to provide a hand grip for retracting the lance.

A guide 12 for the lance is suitably secured inside the case and a coil spring 13 surrounds the lance with the rear end of the spring abutting the rear of the case and with the front end of the spring abutting a washer or flange 14 suitably fixed to the lance at a point behind the guide 12 to function as a stop to limit forward or projecting movement of the lance by the spring.

A trigger mechanism is composed of a leaf spring 15 having one end secured to guide 12 and with the free end of the spring extending longitudinally in a rearward direction at one side of the lance and curved toward the latter to engage the flange or stop 14 when the lance is retracted to hold the latter in a cocked position. A plunger 16 is slidably mounted in one side of the case with the outer end of the plunger projecting outwardly of the case and with the inner end of the plunger secured to the free end of spring 15

to release the latter upon an inward movement of the plunger.

A frame 17 is fixed to and projects forwardly at the front end of the case and tapers toward its front end to form a sighting frame 18 parallel to and spaced forwardly from the front end of the case. A pair of sighting or locating pins 19 project toward each other at opposite sides of sighting frame 18 with their pointed ends 20 spaced from each other a distance at least equal to the width of lance 7.

The plunger or stop 14 is attached to the lance in a position to permit projection of tip 10 a predetermined distance beyond sighting frame 18 when the stop strikes guide 12 and this distance may be increased by means of an adjustable stop bar 21 which is slidably mounted in an opening 28 in one side of case 5 as well as in an opening 29 in a flange 30 on guide 12 and stop bar 21 is formed with a bifurcation or notch 23 in its inner end to slidably receive lance 7 to position stop bar 21 between guide 12 and flange or stop 14 on the lance. A coil spring 24 is mounted on stop bar 21 between the adjacent side of the case and a flange or washer 25 fixed to the stop bar to retract the latter and hold the same interposed between guide 12 and flange or stop 14. A ring 26 is secured to the outer end of stop bar 21 to provide a finger grip to pull the stop bar outwardly for disengaging the same from the lance. A notch 27 is formed in one longitudinal edge of stop bar 21 to receive an edge of case 5 in the region of guide opening 28 to lock the stop bar in an outward position out of the path of stop 14 which will then strike guide 12 upon projecting movement of the lance and thus increase the stroke of the lance to increase the penetrating depth thereof, as indicated by dotted lines at the tip of the lance, in Figure 2.

The rear end of the case is provided with a carrying ring 31 by means of which the case may be attached to the belt of a person (not shown) and compartments 32 and 33 are formed in the case for carrying medical supplies. A removable shield, indicated by dotted lines 34 in Figure 2, may be telescopically fitted over the front end of the case to protect the tip of the lance, when not in use.

In the operation of the device, the lance 7 is pulled rearwardly and set in its cocked position by the engagement of flange or stop 14 behind spring 15. The stop bar 21 is regulated according to the desired depth of the incision to be made. The sighting frame 18 is then placed against the wounded member 35 and with the sighting pins 19 in locating position with respect to the pin point fang wounds 36 and the plunger 16 is then depressed to release the spring 15 from lance 7 which is then projected forwardly to make the initial incision. The operation may be repeated to lance the wounded member at different locations as many times as deemed necessary to prevent spreading of the poison.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

The embodiments of the invention, in which an exclusive property or privilege is claimed, are defined as follows:

1. A surgical instrument of the class described comprising a case, a lance blade slidably mounted therein with the tip of the blade projecting outwardly at the front end of the case, spring means projecting the blade, said blade being pulled rearwardly into a retracted position, a sighting frame supported in a forwardly extended position at the front end of the case and against which the portion of a person's anatomy to be lanced is placed in the path of the blade, and a plurality of opposed wound locating pins projecting inwardly of the frame.
2. A surgical instrument of the class described comprising a case, a lance blade slidably mounted in the case, spring means projecting one end of the blade at the front end of the case, said blade being retracted by pulling the same rearwardly, a stop carried by the blade to limit its projecting movement, and a member carried by the case and movable into and out of the path of the stop to vary the stroke of the blade.
3. A surgical instrument of the class described, comprising a case, a lance blade slidably mounted in the case, spring means projecting one end of the blade at the front end of the case, said blade being retracted by pulling the same rearwardly, a stop carried by the blade to limit its projecting movement, a stop bar slidably carried by the case and movable into and out of the path of the stop to vary the stroke of the blade, and means locking the stop bar in a predetermined position.



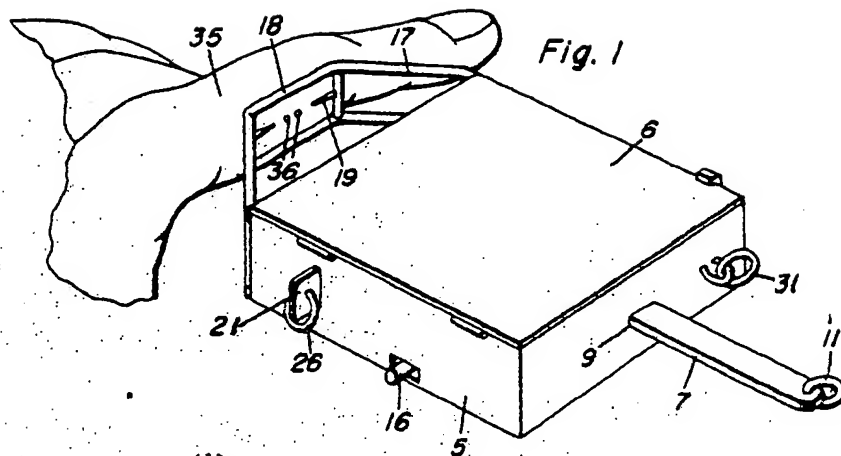


Fig. 1

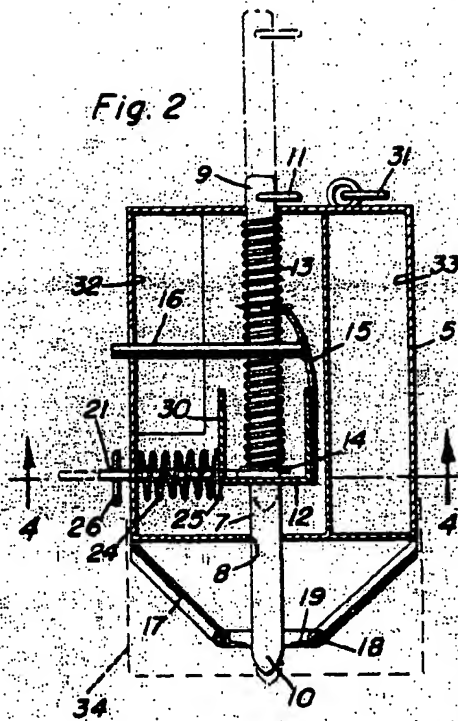


Fig. 2

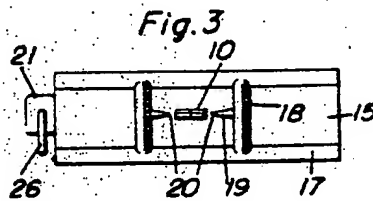


Fig. 3

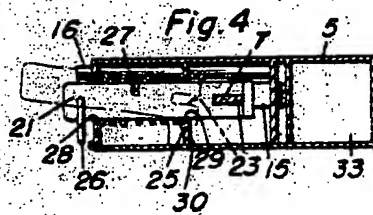


Fig. 4

Fig. 5



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